CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/Gradation/2012-13

02.04.2013

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.H. Shivakumar,** Contractor, Bangalore.

Name of Work : Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.

Reference : AEE/VP/WO/330/2012-13 Dated: 08.03.2013

Date of Testing : 02.04.2013

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7395**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	290	290	3.9	96.1	95-100
22.4	2425	2715	36.7	63.3	60-80
11.2	1510	4225	57.1	42.9	40-60
4.75	825	5050	68.3	31.7	25-40
2.36	910	5960	80.6	19.4	15-30
0.600	555	6515	88.1	11.9	8-22
0.075	525	7040	95.2	4.8	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-Tech Consultants & Engineers Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/Gradation/2012-13

02.04.2013

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.H. Shivakumar,** Contractor, Bangalore.

Name of Work : Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.

Reference : AEE/VP/WO/330/2012-13 Dated: 08.03.2013

Date of Testing : 02.04.2013

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7420**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	275	275	3.7	96.3	95-100
22.4	2580	2855	38.5	61.5	60-80
11.2	1325	4180	56.3	43.7	40-60
4.75	845	5025	67.7	32.3	25-40
2.36	915	5940	80.1	19.9	15-30
0.600	575	6515	87.8	12.2	8-22
0.075	520	7035	94.8	5.2	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-Tech Consultants & Engineers Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/Gradation/2012-13

02.04.2013

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.H. Shivakumar,** Contractor, Bangalore.

Name of Work : Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.

Reference : AEE/VP/WO/330/2012-13 Dated: 08.03.2013

Date of Testing : 02.04.2013

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): 7815

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	225	225	2.9	97.1	95-100
22.4	2785	3010	38.5	61.5	60-80
11.2	1370	4380	56.0	44.0	40-60
4.75	935	5315	68.0	32.0	25-40
2.36	875	6190	79.2	20.8	15-30
0.600	650	6840	87.5	12.5	8-22
0.075	620	7460	95.5	4.5	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-Tech Consultants & Engineers Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/Gradation/2012-13

02.04.2013

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.H. Shivakumar,** Contractor, Bangalore.

Name of Work : Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.

Reference : AEE/VP/WO/330/2012-13 Dated: 08.03.2013

Date of Testing : 02.04.2013

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **9435**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	320	320	3.4	96.6	95-100
22.4	2605	2925	31.0	69.0	60-80
11.2	1860	4785	50.7	49.3	40-60
4.75	1585	6370	67.5	32.5	25-40
2.36	1050	7420	78.6	21.4	15-30
0.600	985	8405	89.1	10.9	8-22
0.075	675	9080	96.2	3.8	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/Gradation/2012-13

02.04.2013

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.H. Shivakumar,** Contractor, Bangalore.

Name of Work : Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.

Reference : AEE/VP/WO/330/2012-13 Dated: 08.03.2013

Date of Testing : 02.04.2013

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **8325**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	190	190	2.3	97.7	95-100
22.4	2500	2690	32.3	67.7	60-80
11.2	1650	4340	52.1	47.9	40-60
4.75	1250	5590	67.1	32.9	25-40
2.36	980	6570	78.9	21.1	15-30
0.600	800	7370	88.5	11.5	8-22
0.075	600	7970	95.7	4.3	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-Tech Consultants & Engineers Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/AIV/2012-13 03.04.2013

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.H. Shivakumar,** Contractor, Bangalore.
Name of the Work	Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.
Reference	AEE/VP/WO/330/2012-13 Dated: 08.03.2013
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	03.04.2013

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	380	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	79	82	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	298	
4	Aggregate Impact value = percent fines	20.84	21.58	
	100* (W_2/W_1)%			21.21

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/AIV/2012-13 03.04.2013

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.H. Shivakumar,** Contractor, Bangalore.
Name of the Work	Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.
Reference	AEE/VP/WO/330/2012-13 Dated: 08.03.2013
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	03.04.2013

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	299	
4	Aggregate Impact value = percent fines	21.47	22.14	
	100* (W_2/W_1)%			21.80

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.
Tele fax : 23223227, Cell : 93428 39190, Website : www.civiltechconsultants.com
e-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/AIV/2012-13 03.04.2013

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.H. Shivakumar,** Contractor, Bangalore.
Name of the Work	Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.
Reference	AEE/VP/WO/330/2012-13 Dated: 08.03.2013
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	03.04.2013

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	83	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	299	
4	Aggregate Impact value = percent fines	21.67	22.54	
	100* (W_2/W_1)%			22.10

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/S-T/2012-13 03.04.2013

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.H. Shivakumar,** Contractor, Bangalore.
Name of Work	Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.
Reference	AEE/VP/WO/330/2012-13 Dated: 08.03.2013
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	03.04.2013

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.29%**

Elongation Index = **13.51%**

Result : Combined Flakiness & Elongation index **24.80%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.
Tele fax : 23223227, Cell : 93428 39190, Website : www.civiltechconsultants.com
e-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/S-T/2012-13 03.04.2013

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.H. Shivakumar,** Contractor, Bangalore.
Name of Work	Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.
Reference	AEE/VP/WO/330/2012-13 Dated: 08.03.2013
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	03.04.2013

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.72%**

Elongation Index = **13.48%**

Result : Combined Flakiness & Elongation index 25.20%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.
Tele fax : 23223227, Cell : 93428 39190, Website : www.civiltechconsultants.com
e-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BHS/WMM/S-T/2012-13 03.04.2013

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.H. Shivakumar,** Contractor, Bangalore.
Name of Work	Improvements of Nanjappa Circle in Ward No. 09, BBMP, Bangalore.
Reference	AEE/VP/WO/330/2012-13 Dated: 08.03.2013
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	03.04.2013

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.86%**

Elongation Index = **13.91%**

Result : Combined Flakiness & Elongation index 25.77%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.
Tele fax : 23223227, Cell : 93428 39190, Website : www.civiltechconsultants.com
e-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com